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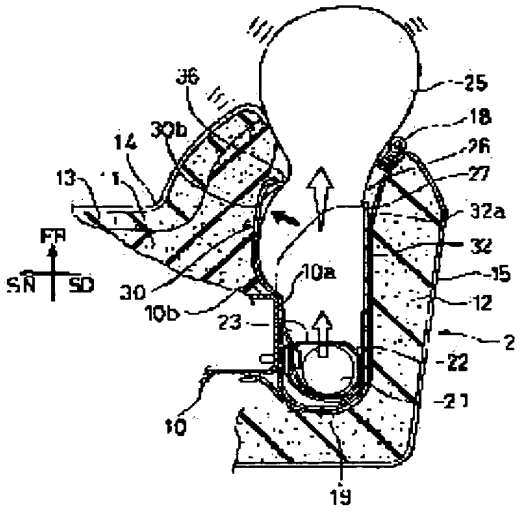
(54) AIR BAG DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To sufficiently absorb the secondary collision energy to a side wall, of an occupant even when an armrest part is protruded by arranging an inflator on the side surface of a seat back frame with the injection port situated in the front, and forming an opening part on the front end part of the outer side wall of a case body extended to the front side of the seat back frame.
SOLUTION: This air bag device is formed of a cylindrical holder 22 for housing an inflator 21, an air bag body 25, and a case body 27 having a cleavable opening part 26. The injection port 23 of the holder 22 is arranged forward. A lid part 30b is integrally formed on the inside wall 30 of the case body 27 through a thin hinge. The air bag body 24 can be swollen only to the front side and fitted between an occupant and the cabin inside wall without being interfered with an armrest part by arresting the inward movement by the side surface 10a of the seat back frame 10, extending the opening part 26 to the front side from the front surface 10b of the seat back frame 10, and extending a reinforcing member 19 from an outside wall 32.



LEGAL STATUS

[Date of request for examination]

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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

* NOTICES *

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CLAIMS

[Claim(s)]

[Claim 1] The tubed electrode holder with which the inflator was contained inside. It is the air bag main part which can expand by the gas which blew off from the aforementioned inflator while it was allotted so that this electrode holder might blow off and the induction of gas might be faced a mouth, and always being folded up. It is opening which can cleave by expansion of the aforementioned air bag main part in a wrap about the aforementioned electrode holder and an air bag main part. It is air bag equipment equipped with the above, and it blows off, while the side of a seat-back frame comes to arrange the aforementioned inflator, a mouth turns to an anterior and is arranged in it, and from the aforementioned seat-back frame, opening of the aforementioned case main part is formed in the front end section of the outside wall of this case main part that comes to extend even in the position of an anterior, and is characterized by the bird clapper.

[Claim 2] It is air bag equipment which it is air bag equipment according to claim 1, the aforementioned outside wall and an inside wall are formed in one with a light-gage hinge, and, as for the aforementioned case main part, an on-the-strength means is arranged by the aforementioned outside wall, and the aforementioned opening is engaged free [attachment and detachment in the front end section of the aforementioned outside wall] for the opening edge of the aforementioned inside wall, and is characterized by the bird clapper.

[Claim 3] It is air bag equipment which it is air bag equipment according to claim 1 or 2, and the opening edge of the aforementioned paries medialis orbitae is formed in the shape of [which the aforementioned inflator blew off and countered the mouth] a field, and is characterized by the bird clapper.

[Claim 4] It is air bag equipment which it is air bag equipment given in any of claims 1-3 they are, and the opening edge of the aforementioned paries medialis orbitae is formed in the angle which makes 45 - 75 degrees to the general surface of the aforementioned paries lateralis orbitae, and is characterized by the bird clapper.

[Claim 5] It is air bag equipment which it is air bag equipment given in any of claims 1-4 they are, and the reinforcement member connected to the outside wall which turned the aforementioned on-the-strength means to the aforementioned opening edge from the aforementioned inflator supporter at the cleavage section of a seat back is ****(ed), and is characterized by the bird clapper.

[Claim 6] Air bag equipment for which a bridge is constructed over a rib towards the aforementioned opening edge side by the part which does not contact the aforementioned seat-back frame of the aforementioned inside wall and which is air bag equipment given in any of claims 1-5 they are, and is characterized by the bird clapper at it.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the air bag equipment which expands in an instant and takes care of the crew of a self-vehicle at the time of the so-called side collision with which other vehicles collide with the side of an automobile collision, especially a self-vehicle.
[0002]
[Description of the Prior Art] As air bag equipment which the former requires, there is a thing as shown, for example in JP,8-244552,A or JP,9-76865,A.
[0003] Usually, although an air bag main part is folded up in the case main part in a seat back and it is contained at the time, the air bag equipment for side ** shown in the former official report At the time of the side collision of an automobile, introduce the gas which occurred from the inflator from a gas port, and an air bag main part expands at it. The lid of a case main part is pushed open, and it bulges towards an anterior, and develops to the space between crew and a vehicle indoor side attachment wall, and the shock at the time of crew colliding secondarily to a vehicle indoor side attachment wall with this air bag main part is absorbed.
[0004] Although an air bag main part is folded up in the case main part in a seat back and it is usually contained at the time, an air bag main part expands by the inflator at the time of the side collision of an automobile, a lid develops outside the air bag equipment for side ** shown in the latter official report from a seat-back transverse-plane side to a seat-back tooth-back side, and an air bag main part is developed between the vehicles inside section and a crew flank out of a case main part.
[0005]
[Problem(s) to be Solved by the Invention] as mentioned above -- the structure of conventional air bag equipment -- "lid -- pushing open -- " and "lid ... the structure which a lid once develops outside is indispensable structure as it develops outside and is explained as "
[0006] However, as everyone knows, the top of a waist line to the bottom is not [to / near the side sill] flat, and the armrest section projects it towards a crew side in the position of vertical abbreviation middle, and it is making structure which can support crew's arm the vehicle indoor side attachment wall.
[0007] That is, it is actual that only the space which pushes a lid open is divided up and down by the armrest section between the seat-back side and a vehicle indoor side attachment wall.
[0008] Moreover, temporarily, in order to make it not divided up and down by the armrest section, it is necessary to give a means by which an air bag main part is not divided up and down, by lessening right-and-left width of face of a seat back, and worsening amenity by lessening the amount of protrusions of the armrest section extremely, and worsening support nature of crew's arm, or separating the side of a seat back from a vehicle indoor side attachment wall extremely.
[0009] Moreover, when the armrest section is enough projected so that the support nature of crew's arm may not be spoiled, the air bag main part which expanded enters into the armrest section bottom, and has a possibility that crew's breast or head cannot be protected.
[0010] Even if this invention was made in consideration of the conventional trouble in this way and the armrest section has projected it from the vehicle indoor side attachment wall enough, it enters between crew and a vehicle indoor side attachment wall, can absorb enough the secondary collision energy to crew's vehicle indoor side attachment wall, and aims at offering the air bag equipment which does not spoil the amenity as a seat back.
[0011]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention of a claim 1 The air bag main part which can expand by the gas which blew off from the aforementioned inflator while it is allotted so that the tubed electrode holder contained inside and this electrode holder may blow off and an inflator may face a mouth the induction of gas, and always being folded up, It is air bag equipment which consists the aforementioned electrode holder and an air bag main part of a case main part which has with a wrap opening which can cleave by expansion of the aforementioned air bag main part. the aforementioned inflator It blows off, while the side of a seat-back frame comes to be arranged, a mouth turns to an anterior and is arranged in it, and from the aforementioned seat-back frame, opening of the aforementioned case main part is formed in the front end section of the outside wall of this case main part that comes to extend even in the position of an anterior, and is characterized by the bird clapper.
[0012] Invention of a claim 2 is air bag equipment according to claim 1, the aforementioned outside wall and an inside wall are formed in one with a light-gage hinge, as for the aforementioned case main part, an on-the-strength means is arranged by the aforementioned outside wall, the opening edge of the aforementioned inside wall engages with the front end section of the aforementioned outside wall free [attachment and detachment],

and the aforementioned opening is characterized by the bird clapper.
[0013] Invention of a claim 3 is air bag equipment according to claim 1 or 2, and the opening edge of the aforementioned inside wall is formed in the shape of [which the aforementioned inflator blew off and countered the mouth] a field, and is characterized by the bird clapper.
[0014] Invention of a claim 4 is air bag equipment given in any of claims 1-3 they are, and the opening edge of the aforementioned inside wall is formed in the angle which makes 45 - 75 degrees to the general surface of the aforementioned outside wall, and is characterized by the bird clapper.
[0015] Invention of a claim 5 is air bag equipment given in any of claims 1-4 they are, the reinforcement member connected to the outside wall turned to the aforementioned opening edge from the aforementioned inflator supporter at the cleavage section of a seat back is ****(ed), and the aforementioned on-the-strength means is characterized by the bird clapper.
[0016] Invention of a claim 6 is air bag equipment given in any of claims 1-5 they are, and a bridge is constructed over a rib towards the aforementioned opening edge side by the part which does not contact the aforementioned seat-back frame of the aforementioned paries medialis orbitae, and it is characterized by the bird clapper at it.
[0017]
[Effect of the Invention] If according to invention of a claim 1 an inflator is lit, a electrode holder blows off and gas spouts from a mouth Opening of the this case main part with which it spouts, and a mouth turns to an anterior, and is arranged in it, and it comes to allot an in-the-car side to a **** outside according to the side of a seat-back frame extends even in the position of an anterior from a seat-back frame. by the bird clapper The air bag main part which it comes to fold up always expands towards the anterior of an automobile by the gas which blew off from the aforementioned inflator. Since the in-the-car side of opening of a wrap case main part cleaves this air bag main part, this opening is passed and an air bag main part expands further Without being influenced of this armrest section, even if the armrest section is formed in the vehicle indoor side attachment wall, an air bag main part enters between crew and a vehicle indoor side attachment wall, and the secondary collision energy to crew's vehicle indoor side attachment wall can be absorbed enough.
[0018] Moreover, a case main part does not give foreign body sensation to the back of the crew to whom opening of a case main part sat down by the bird clapper by extending even in the position of an anterior from a seat-back frame, and amenity as a seat back is not spoiled.
[0019] According to invention of a claim 2, since the aforementioned paries lateralis orbitae and the paries medialis orbitae can carry out Kaisei of the aforementioned case main part with a light-gage hinge, in the state where the aforementioned case main part is a simple substance, it is possible to open and install the electrode holder and air bag main part which connoted the inflator focusing on a light-gage hinge, and workability improves.
[0020] Moreover, since the paries lateralis orbitae of the aforementioned case main part is reinforced by the on-the-strength means, even if the pressure by expansion of an air bag main part joins the paries lateralis orbitae, this paries lateralis orbitae cannot deform easily and an air bag main part will not expand outside.
[0021] Since opening of the aforementioned case main part is in the front end section side of the aforementioned paries lateralis orbitae, the pressure at the time of the aforementioned air bag main part expanding will join the opening edge side of the aforementioned paries medialis orbitae, and engagement of these both ends can break away easily.
[0022] Since it comes to be formed in the shape of [to which the aforementioned inflator blew off and the opening edge of the aforementioned paries medialis orbitae countered the mouth] a field according to invention of a claim 3, the pressure at the time of the aforementioned air bag main part expanding will join altogether the opening edge side of the aforementioned paries medialis orbitae, and the loss of a pressure will not arise.
[0023] According to invention of a claim 4, since it comes to form the opening edge of the aforementioned inside wall in the angle which makes 45 - 75 degrees to the general surface of the aforementioned outside wall, even if this air bag equipment is supported by the seat back, it becomes a configuration in alignment with the inclination of crew's back, and foreign body sensation will be given to crew.
[0024] Since the paries lateralis orbitae which turned the aforementioned on-the-strength means to the aforementioned opening edge from the aforementioned inflator supporter comes to **** the reinforcement member connected to the cleavage section of a seat back according to invention of a claim 5, movement of the paries lateralis orbitae on the outside cannot completely arise.
[0025] According to invention of a claim 6, since the part which does not contact the aforementioned seat-back frame of the aforementioned paries medialis orbitae comes to construct a bridge over a rib towards the aforementioned opening edge side, the firmness of the original configuration of the paries medialis orbitae will be good for it.
[0026]
[Embodiments of the Invention] As drawing 1 - drawing 5 are the 1 operation gestalten of this invention and it is shown in drawing 1 and drawing 2 , a sheet 1 consists of a seat back 2 and a seat cushion 3, and it comes to allot this seat back 2 to the position which countered the vehicle indoor side attachment wall 4. As everyone knows, as for a top, the bottom is formed from the waist line 5 to the section 6 near the side sill, and this vehicle indoor side attachment wall 4 can support the arm of the crew who the armrest section 7 projects towards a seat-back 2 side in the position of vertical abbreviation middle, and does not illustrate in it. A sign 8 is a headrest and a sign 9 is reclining equipment.
[0027] As shown in drawing 3 , the aforementioned seat back 2 The seat-back frame 10, The cushion pad 11 which it comes to arrange in the anterior FR of this seat-back frame 10, the side of the aforementioned seat-

back frame 10 -- with the side cushion 12 which it comes to arrange in SD the buffer of the shape of slab urethane which it comes to allot to the anterior FR of the aforementioned cushion pad 11 -- with a member 13 this buffer -- the 1st epidermis 14 of a wrap, and the aforementioned side cushion 12 with the 2nd epidermis 15 of a wrap for a member 13 the side of the aforementioned cushion pad 11 -- with the air bag equipment 16 which it comes to allot by means to mention later between the section and the inside section of the side cushion 12 The beading 18 which comes to intervene in case sewing (it is called the cleavage section 17) of the cleavage of the 1st epidermis 14 of the above and the 2nd epidermis 15 is made possible, the blanket-like reinforcement which protects the aforementioned side cushion 12 because sewing of one side is carried out to the 2nd epidermis 15 of the above, and this beading 18 and the aforementioned seat-back frame 10 insists upon another side -- it consists of a member 19

[0028] The tubed electrode holder 22 with which the inflator 21 which can light the aforementioned air bag equipment 16 with the signal from the sensor which is not illustrated was contained inside, The air bag main part 25 which can expand by the gas which blew off from the aforementioned inflator 21 while it is allotted so that this electrode holder 22 may blow off and induction 24 may be faced a mouth 23, and always being folded up, The aforementioned electrode holder 22 and the air bag main part 25 are consisted of a case main part 27 which has with a wrap the opening 26 which can cleave by expansion of the aforementioned air bag main part 25.

[0029] It comes to arrange the aforementioned electrode holder 22 with the nut 29 screwed in the bolt 28 inserted in side 10a of the seat-back frame 10 with the edge which the induction 24 of the air bag main part 25 turned up. At this time, this electrode holder 22 blows off, and a mouth 23 turns to Anterior FR and it comes to arrange it.

[0030] the aforementioned case main part 27 is arranged on the aforementioned side cushion 12 side through the space section 31 in which the inside wall 30 arranged on the side 10a side of the seat-back frame 10, and a electrode holder 22 and the air bag main part 25 are arranged, as shown in drawing 3 or drawing 5 -- having -- and the aforementioned reinforcement -- the ceiling which connects between the outside wall 32 which comes to **** a member 19, the both-sides wall 30, and 32 -- it consists of a member 33 and floor material 34

[0031] This paries medialis orbitae 30 consists of base 30a which surrounds the aforementioned electrode holder 22 with the aforementioned paries lateralis orbitae 32, and lid section 30b formed in the aforementioned base 30a through the light-gage hinge 35 at one.

[0032] the 1st by which predetermined distance formation was carried out on the extension wire of the aforementioned base 30a as the aforementioned lid section 30b was shown in drawing 4 -- with page 30ba(s) this -- the 1st -- the field which inclined at an angle of [theta] predetermined towards front end section 32a of the aforementioned paries lateralis orbitae 32 from bend-section 30bb of page 30ba(s) -- the 2nd which will change according to change of the shape of surface type by the side of crew habitation of a seat back 2 to one-way 32c of the aforementioned paries lateralis orbitae 32 among 45 - 75 degrees if it puts in another way -- with page 30bc(s) this -- the 2nd -- the free edge 30 which has the claw part 36 in which engagement secession is free from bend-section 30bd of page 30bc(s) in engagement hole 32b formed in front end section 32a of the aforementioned paries lateralis orbitae 32 -- it consists of be, and vertical flange 30bf of this lid section 30b and 30bg [two or more]

[0033] therefore, the part of the shape of a field of the aforementioned inside wall 30 which the aforementioned electrode holder 22 blew off and countered the mouth 23 -- the 2nd -- page 30bc(s) -- and free -- it is edge 30be and is explaining as a "opening edge"

[0034] sign 30bh -- the above 1st -- the part which does not contact side 10a of the aforementioned seat-back frame 10 of page 30ba(s), and the above 2nd -- it is the rib over which it comes to construct a bridge in between page 30bc(s)

[0035] The aforementioned outside wall 32 consists of one-way 32c which extends even in the position of the predetermined size part anterior FR, and consists of field 10b of the anterior of the aforementioned seat-back frame 10, and a rib 37 which estrange more than one to this one-way 32c, and it comes to form in it, as shown in drawing 3 .

[0036] The claw part material 38 which it comes to form in the aforementioned floor material 34 is with the bird clapper which can be engagement broken away, and is raising the engagement force of opening 26 to the engagement hole 39 which it comes to form in the aforementioned lid section 30b more.

[0037] As mentioned above, since it comes to constitute the embodiment of this invention, an inflator 21 lights with a certain signal, a electrode holder 22 blows off, and gas spouts from a mouth 23, as are shown in drawing 8 , and a white arrow shows.

[0038] It this spouts, and a mouth 23 turns to Anterior FR, is arranged in it, and, moreover, movement to the inside beyond it is prevented for the in-the-car side SN by side 10a of the seat-back frame 10. A bird clapper, Front end section 32a of the opening 26 32 of the case main part 27 which it comes to allot to the vehicle outside SD, i.e., an outside wall, extends even in the position of an anterior from field 10b of the anterior of the seat-back frame 10. And a bird clapper, and the external surface of this outside wall 32 -- reinforcement -- even if the air bag main part 25 which comes to **** a member 19 and which it always comes to fold up especially therefore expands by the gas which blew off from the aforementioned inflator 21, movement on the above outside is prevented from the position where the outside wall 32 has been arranged

[0039] And the air bag main part 25 expands promptly towards the anterior FR of an automobile. This air bag main part 25 The in-the-car side of the opening 26 of the wrap case main part 27, Lid section 30b of the inside wall 30 from the position shown with a two-dot chain line by namely, the thing which the claw part 36 of this lid section 30b makes secede from engagement hole 32b of front end section 32a of the outside wall 32 To the

outside wall 32, as a black arrow shows to drawing 8 , it will be cloven by bending from the corner section of side 10a of the seat-back frame 10, and front 10b, this opening 26 is passed, and the air bag main part 25 expands further.
[0040] That is, the air bag main part 25 expands to Anterior FR rather than expands outside, makes the cleavage section 17 of the cushion pad 11 of a seat back 2, and the side cushion 12 cleave, and as shown in drawing 6 or drawing 8 , it bulges on the outside FR of a seat back 2, i.e., an anterior.
[0041] Since the air bag main part 25 cannot interfere in the armrest section 7 which are only that the air bag main part 25 moves to Anterior FR at this time, and it comes to arrange outside but the air bag main part 25 can enter between crew and the vehicle indoor side attachment wall 4 as it is, the secondary collision energy to crew's vehicle indoor side attachment wall 4 is absorbable enough.
[0042] Moreover, when this air bag main part 25 is carrying out the configuration as shown in drawing 9 and drawing 10 , Namely, air bag main part 25 the very thing turns at the letter of the abbreviation for L characters right-angled by 1st bag 25a of the side near nothing and an inflator 21. the construction which leads the gas (an arrow shows) of an inflator 21 to this bend section -- a member 40 is formed, and when open for free passage [to 2nd bag 25b] through the septum 41 which has fine hole 41a, as shown in drawing 6 , the air bag main part 25 which expanded can protect crew's breast and head
[0043] Moreover, in the state where the aforementioned case main part 27 is a simple substance, since the aforementioned outside wall 32 and the inside wall 30 can carry out Kaisei of the aforementioned case main part 27 with the light-gage hinge 35, since lid section 30b of the inside wall 30 can be opened focusing on the light-gage hinge 35 to drawing 4 as a two-dot chain line shows, it is possible to install the electrode holder 22 and the air bag main part 25 which connoted the inflator 21 in the case main part 27, and workability improves.
[0044] moreover, the outside wall 32 of the aforementioned case main part 27 -- the reinforcement as an on-the-strength means -- movement on the outside cannot produce this outside wall 32 at all, i.e., since it is reinforced with a member 19 ****(ing), even if the pressure by expansion of the air bag main part 25 joins the outside wall 32, outside wall 32 the very thing will not deform, and the air bag main part 25 will not expand outside by it
[0045] the pressure at the time of the aforementioned air bag main part 25 expanding, since the opening 26 of the aforementioned case main part 27 was in the front end section 32a side of the aforementioned outside wall 32 -- the 2nd of lid section 30b of the aforementioned inside wall 30 -- it will join the page 32bc(s) and free edge 32be side, and engagement of these both-ends 32a and 32be can break away easily
[0046] the 2nd of lid section 30b of the aforementioned inside wall 30 -- page 32bc(s) -- and free -- the pressure at the time of the aforementioned air bag main part 25 expanding, since it came to be formed in the shape of [to which the aforementioned electrode holder 22 blew off, and edge 32be countered the mouth 23] a field -- the 2nd of lid section 30b of the aforementioned inside wall 30 -- the loss of a **** rate and a pressure will not arise in all the page 32bc(s) and free edge 32be side
[0047] moreover, as shown in drawing 3 , in the state of always which the air bag main part 25 is folded up and becomes That only front end section 32a of the opening 26 32 of the case main part 27, i.e., an outside wall, comes to extend even in the position of an anterior from the seat-back frame 10 If it puts in another way, by being in the backside from front end section 32a of the outside wall 32, the case main part 27 will not give foreign body sensation to the back of the crew who sat down, and the inside wall 30 side will not spoil the amenity as a seat back 2.
[0048] furthermore -- even if this air bag equipment 16 is supported by the seat back 2 -- the 2nd of lid section 30b of the aforementioned inside wall 30 -- page 32bc(s) serve as a configuration which is formed in the angle which makes 45 - 75 degrees to one-way 32c of the aforementioned outside wall 32, and meets the inclination of crew's back by the bird clapper, and will not give crew foreign body sensation
[0049] moreover, the part which does not contact the aforementioned seat-back frame 10 of the aforementioned inside wall 30, i.e., the 1st, -- the anterior of page 30ba(s), and the 2nd -- if it applies to page 30bc(s), since it comes to construct a bridge over rib 30bh towards the aforementioned opening edge side, the firmness of the original configuration of the inside wall 30 will be good
[0050] Moreover, although it comes to form the aforementioned rib 37 in the inside of the outside wall 32 from the portion of the case main part 27 which supports the aforementioned inflator 21 towards the aforementioned opening 26, there may be. [no]

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the whole sheet perspective diagram which carried the air bag equipment of 1 operation form of this invention.
[Drawing 2] It is the front view of drawing 1 .
[Drawing 3] It is the cross section which met the SA-SA line of drawing 2 .
[Drawing 4] It is the cross section of the case main part item of drawing 3 .
[Drawing 5] It is a perspective diagram from the opening side of the case main part of drawing 4 .
[Drawing 6] It is the perspective diagram showing the state where the air bag main part bulged from the state of drawing 1 .
[Drawing 7] It is the front view of drawing 6 .
[Drawing 8] It is the cross section which met the SB-SB line of drawing 7 .
[Drawing 9] It is the side elevation of an air bag main part.
[Drawing 10] It is the cross section which met the SC-SC line of drawing 9 .
[Description of Notations]
1 Sheet
2 Seat Back
4 Vehicle Indoor Side Attachment Wall
7 Armrest Section
10 Seat-Back Frame
10a The side of a seat-back frame
10b The front face of a seat-back frame
16 Air Bag Equipment
17 Cleavage Section
19 Reinforcement -- Member
21 Inflator
22 Electrode Holder
23 Blow Off and it is Mouth.
24 Induction
25 Air Bag Main Part
26 Opening
27 Case Main Part
30 Paries Medialis Orbitae
30b Lid section
30ba(s) The 1st page
30bc(s) The 2nd page
30be(s) Free edge
30bh(s) Rib
32 Paries Lateralis Orbitae
32a Front end section
32b Engagement hole
32c General section
35 Light-gage Hinge
36 Claw Part

[Translation done.]

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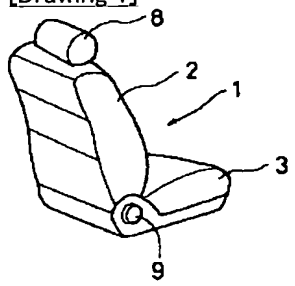
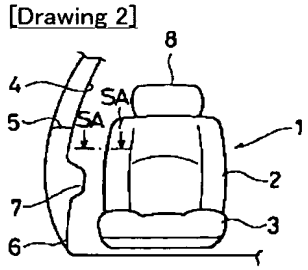
DRAWINGS

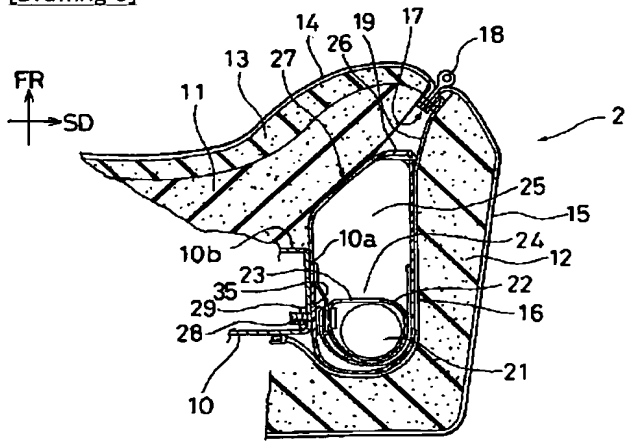
[Drawing 1]



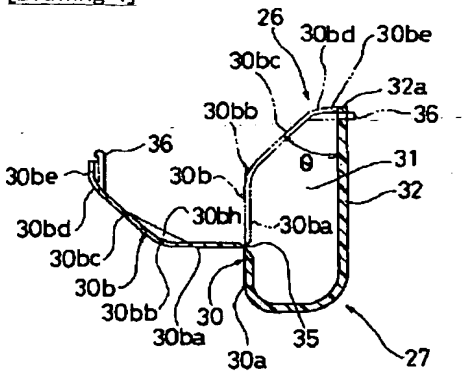
[Drawing 2]



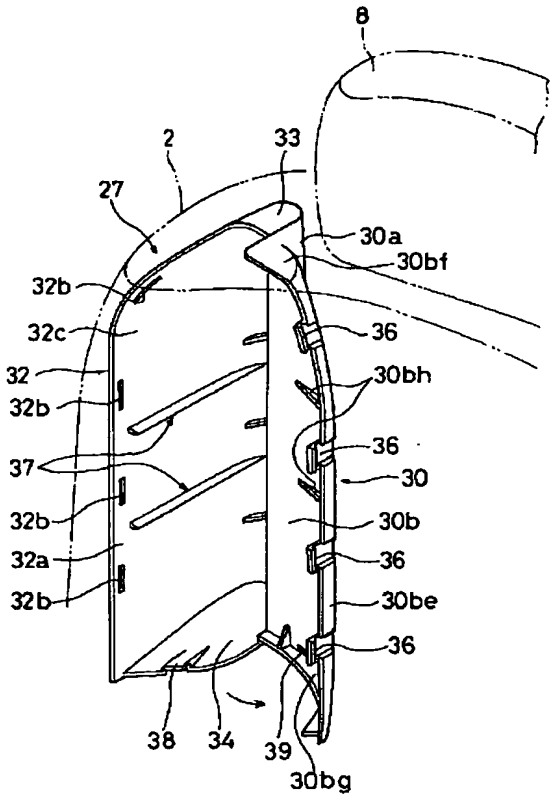
[Drawing 3]



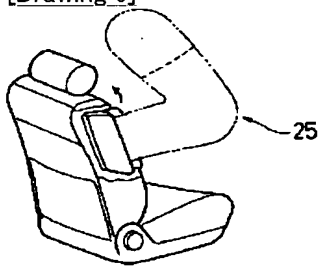
[Drawing 4]



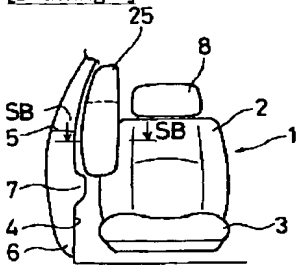
[Drawing 5]



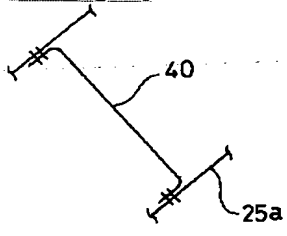
[Drawing 6]



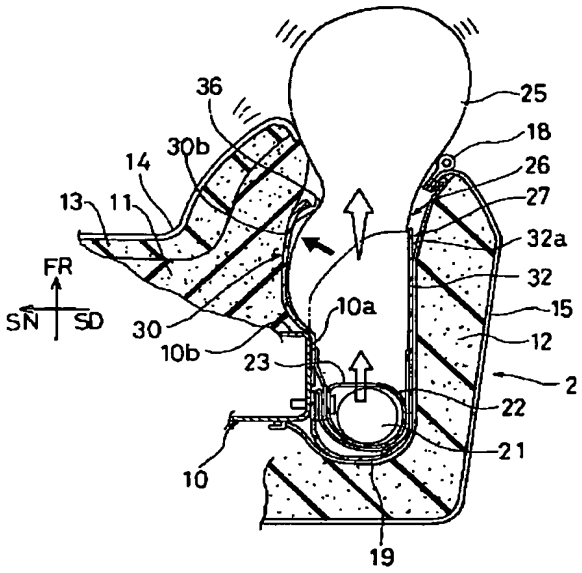
[Drawing 7]



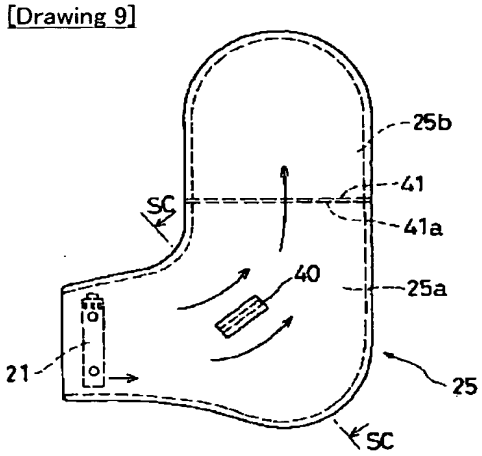
[Drawing 10]



[Drawing 8]



[Drawing 9]



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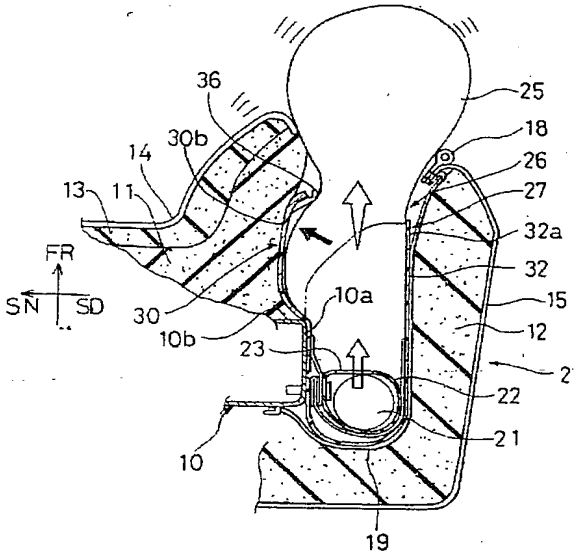
(54)【発明の名称】　エアバッグ装置

(57)【要約】

【課題】　アームレスト部が十分車室内側壁より突出していても、乗員と車室内側壁との間に入り込み、乗員の車室内側壁への二次衝突エネルギを十分吸収でき、シートバックとしての居住性を損なうことがないエアバッグ装置を提供すること。

【解決手段】　インフレータ２１は、シートバックフレーム１０の側面１０ａに配設されてなると共に噴出し口２３が前側ＦＲを向いて配設され、ケース本体２７の開口部２６は、シートバックフレーム１０より前側の位置にまで延在されてなる該ケース本体２７の外側壁３２の前端部３２ａに形成されてなること。



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【特許請求の範囲】

【請求項１】　インフレータが内部に収納された筒状のホルダと、該ホルダの噴出し口にガスの導入部を臨むように配され且つ常時は折り畳まれると共に前記インフレータより噴出されたガスにより膨張可能なるエアバッグ本体と、前記ホルダ及びエアバッグ本体を覆うと共に前記エアバッグ本体の膨張により開裂可能なる開口部を有するケース本体とよりなるエアバッグ装置であって、

前記インフレータは、シートバックフレームの側面に配設されてなると共に噴出し口が前側を向いて配設され、

前記ケース本体の開口部は、前記シートバックフレームより前側の位置にまで延在されてなる該ケース本体の外側壁の前端部に形成されてなることを特徴とするエアバッグ装置。

【請求項２】　請求項１記載のエアバッグ装置であって、

前記ケース本体は、前記外側壁と内側壁とが薄肉ヒンジで一体に形成され、前記外側壁には強度手段が配設され、前記開口部は、前記内側壁の開口端部が前記外側壁の前端部に着脱自在に係合されてなることを特徴とするエアバッグ装置。

【請求項３】　請求項１又は２記載のエアバッグ装置であって、

前記内側壁の開口端部は、前記インフレータの噴出し口に対向した面状に形成されてなることを特徴とするエアバッグ装置。

【請求項４】　請求項１～３の何れかに記載のエアバッグ装置であって、

前記内側壁の開口端部は、前記外側壁の一般面に対して４５～７５度をなす角度に形成されてなることを特徴とするエアバッグ装置。

【請求項５】　請求項１～４の何れかに記載のエアバッグ装置であって、

前記強度手段は、前記インフレータ支持部から前記開口端部に向けた外側壁に、シートバックの開裂部に接続された補強部材が沿設されてなることを特徴とするエアバッグ装置。

【請求項６】　請求項１～５の何れかに記載のエアバッグ装置であって、

前記内側壁の前記シートバックフレームに当接しない部位には、前記開口端部側に向けてリブが架橋されてなることを特徴とするエアバッグ装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、自動車衝突、特に自車の側面に他車が衝突する、所謂側面衝突時に、瞬時に膨張して自車の乗員を保護するエアバッグ装置に関する。

【０００２】

【従来の技術】従来のかかるエアバッグ装置としては、

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例えば特開平８－２４４５５２号公報や特開平９－７６８６５号公報に示すようなものがある。

【０００３】前者の公報に示されている側突用エアバッグ装置は、通常時はエアバッグ本体がシートバック内のケース本体内に折り畳まれて収納されているが、自動車の側面衝突時に、インフレータから発生したガスをガス噴出口から導入してエアバッグ本体が膨張し、ケース本体のリッドを押し開いて前側に向けて膨出し、乗員と車室内側壁との間の空間に展開し、このエアバッグ本体によって車室内側壁へ乗員が二次衝突する際の衝撃を吸収するようになっている。

【０００４】後者の公報に示されている側突用エアバッグ装置は、通常時はエアバッグ本体がシートバック内のケース本体内に折り畳まれて収納されているが、自動車の側面衝突時に、エアバッグ本体がインフレータによって膨張し、リッドがシートバック正面側からシートバック背面側へ外側に展開し、エアバッグ本体はケース本体の外へ車両内側部と乗員側部との間に展開するようになっている。

【０００５】

【発明が解決しようとする課題】以上のように、従来のエアバッグ装置の構造では、「リッドを押し開いて」とか「リッドが・・・外側に展開し」と説明されているように、リッドが一旦外側に展開する構造が必須の構造である。

【０００６】ところが、車室内側壁には、周知のように上はウエストラインから下はサイドシル近傍まで平坦ではなく、上下略中間の位置にアームレスト部が乗員側に向けて突出し、乗員のアームを支持可能なる構造をしている。

【０００７】つまり、シートバック側面と車室内側壁との間には、リッドを押し開くだけの空間がアームレスト部によって上下に分断されているのが現実である。

【０００８】また、仮に、アームレスト部によって上下に分断されないようにする為には、アームレスト部の突出量を極端に少なくして、乗員のアームの支持性を悪くするか、或いは、シートバックの側面を車室内側壁から極端に離すことによってシートバックの左右幅を少なくし、居住性を悪くすることで、エアバッグ本体が上下に分断されない手段を施す必要がある。

【０００９】また、アームレスト部を乗員のアームの支持性を損なわないように十分突出していると、膨張したエアバッグ本体は、アームレスト部の下側に入り込んで、乗員の胸や頭部を保護できない恐れがある。

【００１０】本発明は、このように従来の問題点を考慮してなされたものであり、アームレスト部が十分車室内側壁より突出していても、乗員と車室内側壁との間に入り込み、乗員の車室内側壁への二次衝突エネルギを十分吸収でき、シートバックとしての居住性を損なうことがないエアバッグ装置を提供することを目的とする。

【００１１】
【課題を解決するための手段】上記目的を達成するため、請求項１の発明は、インフレータが内部に収納された筒状のホルダと、該ホルダの噴出し口にガスの導入部を臨むように配され且つ常時は折り畳まれると共に前記インフレータより噴出されたガスにより膨張可能なるエアバッグ本体と、前記ホルダ及びエアバッグ本体を覆うと共に前記エアバッグ本体の膨張により開裂可能なる開口部を有するケース本体とよりなるエアバッグ装置であって、前記インフレータは、シートバックフレームの側面に配設されてなると共に噴出し口が前側を向いて配設され、前記ケース本体の開口部は、前記シートバックフレームより前側の位置にまで延在されてなる該ケース本体の外側壁の前端部に形成されてなることを特徴とする。
【００１２】請求項２の発明は、請求項１記載のエアバッグ装置であって、前記ケース本体は、前記外側壁と内側壁とが薄肉ヒンジで一体に形成され、前記外側壁には強度手段が配設され、前記開口部は、前記内側壁の開口端部が前記外側壁の前端部に着脱自在に係合されてなることを特徴とする。
【００１３】請求項３の発明は、請求項１又は２記載のエアバッグ装置であって、前記内側壁の開口端部は、前記インフレータの噴出し口に対向した面状に形成されてなることを特徴とする。
【００１４】請求項４の発明は、請求項１～３の何れかに記載のエアバッグ装置であって、前記内側壁の開口端部は、前記外側壁の一般面に対して４５～７５度をなす角度に形成されてなることを特徴とする。
【００１５】請求項５の発明は、請求項１～４の何れかに記載のエアバッグ装置であって、前記強度手段は、前記インフレータ支持部から前記開口端部に向けた外側壁に、シートバックの開裂部に接続された補強部材が沿設されてなることを特徴とする。
【００１６】請求項６の発明は、請求項１～５の何れかに記載のエアバッグ装置であって、前記内側壁の前記シートバックフレームに当接しない部位には、前記開口端部側に向けてリブが架橋されてなることを特徴とする。
【００１７】
【発明の効果】請求項１の発明によれば、インフレータに点火してホルダの噴出し口よりガスが噴出すると、該噴出し口が前側を向いて配設され且つ車内側がシートバックフレームの側面によって又車外側に配されてなるケース本体の開口部がシートバックフレームより前側の位置にまで延在されてなることにより、常時は折り畳まれてなるエアバッグ本体が前記インフレータより噴出されたガスにより自動車の前側に向けて膨張し、該エアバッグ本体を覆うケース本体の開口部の車内側が開裂し、該開口部を通過してエアバッグ本体が更に膨張するので、アームレスト部が車室内側壁に形成されていても、該アームレスト部の影響を受けることなく、乗員と車室内側壁との間にエアバッグ本体が入り込み、乗員の車室内側壁への二次衝突エネルギを十分吸収できる。
【００１８】また、ケース本体の開口部がシートバックフレームより前側の位置にまで延在されてなることにより、着座した乗員の背中にケース本体が異物感を与えず、シートバックとしての居住性を損なうことがない。
【００１９】請求項２の発明によれば、前記ケース本体が薄肉ヒンジにより前記外側壁と内側壁とが開成できるので、前記ケース本体が単体である状態では、インフレータを内包したホルダ及びエアバッグ本体を薄肉ヒンジを中心に開いて据え付けることが可能であり、作業性が向上する。
【００２０】また、前記ケース本体の外側壁が強度手段により補強されているので、エアバッグ本体の膨張による圧力が外側壁に加わっても、該外側壁は変形しにくく、エアバッグ本体が外側に膨張してしまわないことになる。
【００２１】前記ケース本体の開口部が、前記外側壁の前端部側にあるので、前記エアバッグ本体の膨張した際の圧力が前記内側壁の開口端部側に加わり、該両端部の係合が容易に離脱できることになる。
【００２２】請求項３の発明によれば、前記内側壁の開口端部が、前記インフレータの噴出し口に対向した面状に形成されてなるので、前記エアバッグ本体の膨張した際の圧力が前記内側壁の開口端部側に全て加わり、圧力のロスが生じないことになる。
【００２３】請求項４の発明によれば、前記内側壁の開口端部は、前記外側壁の一般面に対して４５～７５度をなす角度に形成されてなるので、該エアバッグ装置がシートバックに支持されていても、乗員の背中の傾斜に沿う形状となり、乗員に異物感を与えないことになる。
【００２４】請求項５の発明によれば、前記強度手段は、前記インフレータ支持部から前記開口端部に向けた外側壁に、シートバックの開裂部に接続された補強部材が沿設されてなるので、外側への外側壁の移動が全く生じ得ないことになる。
【００２５】請求項６の発明によれば、前記内側壁の前記シートバックフレームに当接しない部位には、前記開口端部側に向けてリブが架橋されてなるので、内側壁の当初の形状の保形性が良いことになる。
【００２６】
【発明の実施の形態】図１～図５は本発明の一実施形態であり、図１及び図２に示すように、シート１は、シートバック２とシートクッション３とよりなり、該シートバック２は、車室内側壁４に対向した位置に配されてなる。該車室内側壁４は、周知のように上はウエストライン５から下はサイドシル近傍部６まで形成され、上下略中間の位置にアームレスト部７がシートバック２側に向けて突出し、図示しない乗員のアームを支持可能であ

る。符号８はヘッドレスト、符号９はリクライニング装置である。

【００２７】前記シートバック２は、図３に示すように、シートバックフレーム１０と、該シートバックフレーム１０の前側ＦＲに配設されてなるクッションパッド１１と、前記シートバックフレーム１０の側方ＳＤに配設されてなるサイドクッション１２と、前記クッションパッド１１の前側ＦＲに配されてなるスラブウレタン状の緩衝部材１３と、該緩衝部材１３を覆う第１表皮１４と、前記サイドクッション１２を覆う第２表皮１５と、前記クッションパッド１１の側方部及びサイドクッション１２の内面部間に後述する手段により配されてなるエアバッグ装置１６と、前記第１表皮１４及び第２表皮１５を開裂可能に縫製（開裂部１７という）する際に介在してなる玉縁１８と、一方が前記第２表皮１５及び該玉縁１８に縫製され且つ他方が前記シートバックフレーム１０に固持されることで、前記サイドクッション１２を保護する布状の補強部材１９とよりなる。

【００２８】前記エアバッグ装置１６は、図示しないセンサーなどよりの信号により点火可能なるインフレータ２１が内部に収納された筒状のホルダ２２と、該ホルダ２２の噴出し口２３に導入部２４を臨むように配され且つ常時は折り畳まれると共に前記インフレータ２１より噴出されたガスにより膨張可能なるエアバッグ本体２５と、前記ホルダ２２及びエアバッグ本体２５を覆うと共に前記エアバッグ本体２５の膨張により開裂可能なる開口部２６を有するケース本体２７とよりなる。

【００２９】前記ホルダ２２は、シートバックフレーム１０の側面１０ａに、エアバッグ本体２５の導入部２４の折り返した端部と共に挿入されたボルト２８に螺合したナット２９により配設されてなる。この時、該ホルダ２２の噴出し口２３は、前側ＦＲを向いて配設されてなる。

【００３０】前記ケース本体２７は、図３乃至図５に示すように、シートバックフレーム１０の側面１０ａ側に配される内側壁３０と、ホルダ２２、エアバッグ本体２５が配設される空間部３１を介して前記サイドクッション１２側に配され且つ前記補強部材１９が沿設されてなる外側壁３２と、両側壁３０、３２間を繋ぐ天井部材３３及び床部材３４とよりなる。

【００３１】該内側壁３０は、前記外側壁３２と共に前記ホルダ２２を囲繞する基部３０ａと、薄肉ヒンジ３５を介して前記基部３０ａに一体に形成されるリッド部３０ｂとよりなる。

【００３２】前記リッド部３０ｂは、図４に示すように、前記基部３０ａの延長線上に所定距離形成された第１面３０ｂａと、該第１面３０ｂａの曲がり部３０ｂｂから前記外側壁３２の前端部３２ａに向けて所定の角度⊖で傾斜した面、換言すると前記外側壁３２の一般面３２ｃに対して４５～７５度の間でシートバック２の乗員居住側の表面形状の変化に従って変化される第２面３０ｂｃと、該第２面３０ｂｃの曲がり部３０ｂｄから前記外側壁３２の前端部３２ａに複数形成された係合穴３２ｂに係合離脱自在な爪部３６を有する自由端部３０ｂｅと、該リッド部３０ｂの上下フランジ３０ｂｆ，３０ｂｇとよりなる。

【００３３】従って、前記ホルダ２２の噴出し口２３に対向した前記内側壁３０の面状の部位は、第２面３０ｂｃ及び自由端部３０ｂｅであり、「開口端部」として説明している。

【００３４】符号３０ｂｈは、前記第１面３０ｂａの前記シートバックフレーム１０の側面１０ａに当接しない部位と前記第２面３０ｂｃとの間を架橋されてなるリブである。

【００３５】前記外側壁３２は、図３に示すように、前記シートバックフレーム１０の前側の面１０ｂより所定寸法分前側ＦＲの位置にまで延在されてなる一般面３２ｃと、該一般面３２ｃに複数離間して形成されてなるリブ３７とよりなる。

【００３６】前記床部材３４に形成されてなる爪部材３８は、前記リッド部３０ｂに形成されてなる係合穴３９に係合離脱自在なることで、開口部２６の係合力をより高めている。

【００３７】以上より、本発明の実施態様は構成されてなるので、インフレータ２１が何らかの信号により点火してホルダ２２の噴出し口２３よりガスが、図８に示すように、白抜き矢印で示すように噴出する。

【００３８】該噴出し口２３が前側ＦＲを向いて配設されていて、しかも車内側ＳＮがシートバックフレーム１０の側面１０ａによってそれ以上の内側への移動が阻止されてなること、及び、車外側ＳＤに配されてなるケース本体２７の開口部２６、つまり外側壁３２の前端部３２ａがシートバックフレーム１０の前側の面１０ｂより前側の位置にまで延在されてなること、並びに、該外側壁３２の外面を補強部材１９が沿設されてなる、ことによって、常時は折り畳まれてなるエアバッグ本体２５が、前記インフレータ２１より噴出されたガスにより膨張しても、外側壁３２が配置された位置より以上の外側への移動が阻止される。

【００３９】そして、自動車の前側ＦＲに向けて速やかにエアバッグ本体２５が膨張し、該エアバッグ本体２５を覆うケース本体２７の開口部２６の車内側、即ち内側壁３０のリッド部３０ｂを、二点鎖線で示す位置から、該リッド部３０ｂの爪部３６が外側壁３２の前端部３２ａの係合穴３２ｂから離脱させることで、外側壁３２に対して、図８に黒矢印で示すように、シートバックフレーム１０の側面１０ａと前面１０ｂとのコーナー部から曲げることで開裂した状態になり、該開口部２６を通過してエアバッグ本体２５が更に膨張する。

【００４０】つまり、エアバッグ本体２５は、外側に膨

張するのではなく、前側ＦＲに膨張して、シートバック２のクッションパッド１１とサイドクッション１２との開裂部１７を開裂させ、図６乃至図８に示すようにシートバック２の外側、つまり前側ＦＲに膨出する。

【００４１】この時、エアバッグ本体２５は、前側ＦＲに移動するのみであって、外側に配設されてなるアームレスト部７にエアバッグ本体２５は干渉せず、そのまま乗員と車室内側壁４との間にエアバッグ本体２５が入り込むことができるので、乗員の車室内側壁４への二次衝突エネルギを十分吸収できる。

【００４２】また、該エアバッグ本体２５が、図９及び図１０に示すような形状をしている場合、即ち、エアバッグ本体２５自体が略Ｌ字状をなし、インフレータ２１に近い側の第１袋２５ａで直角に曲がり、該曲がり部にインフレータ２１のガス（矢印で示す）を導く架設部材４０を設け、細かい穴４１ａを有する隔壁４１を介して第２袋２５ｂに連通している場合、図６に示すように、膨張したエアバッグ本体２５は、乗員の胸及び頭部を保護することができる。

【００４３】また、前記ケース本体２７が薄肉ヒンジ３５により前記外側壁３２と内側壁３０とが開成できるので、前記ケース本体２７が単体である状態では、図４に二点鎖線で示すように、薄肉ヒンジ３５を中心に内側壁３０のリッド部３０ｂを開くことができるため、インフレータ２１を内包したホルダ２２及びエアバッグ本体２５をケース本体２７内に据え付けることが可能であり、作業性が向上する。

【００４４】また、前記ケース本体２７の外側壁３２が、強度手段としての補強部材１９により沿設されることで、補強されているので、エアバッグ本体２５の膨張による圧力が外側壁３２に加わっても、該外側壁３２は外側への移動が全く生じ得ない、つまり外側壁３２自体が変形せず、エアバッグ本体２５が外側に膨張してしまわないことになる。

【００４５】前記ケース本体２７の開口部２６が、前記外側壁３２の前端部３２ａ側にあるので、前記エアバッグ本体２５の膨張した際の圧力が前記内側壁３０のリッド部３０ｂの第２面３２ｂｃ及び自由端部３２ｂｅ側に加わり、該両端部３２ａ、３２ｂｅの係合が容易に離脱できることになる。

【００４６】前記内側壁３０のリッド部３０ｂの第２面３２ｂｃ及び自由端部３２ｂｅが、前記ホルダ２２の噴出し口２３に対向した面状に形成されてなるので、前記エアバッグ本体２５の膨張した際の圧力が、前記内側壁３０のリッド部３０ｂの第２面３２ｂｃ及び自由端部３２ｂｅ側全てに加わわり、圧力のロスが生じないことになる。

【００４７】また、図３に示すように、エアバッグ本体２５が折り畳まれてなる常時の状態では、ケース本体２７の開口部２６、つまり外側壁３２の前端部３２ａのみが、シートバックフレーム１０より前側の位置にまで延在されてなるということは、換言すると、内側壁３０側は外側壁３２の前端部３２ａより後ろ側にあることにより、着座した乗員の背中にケース本体２７が異物感を与えず、シートバック２としての居住性を損なうことがない。

【００４８】更に、該エアバッグ装置１６がシートバック２に支持されていても、前記内側壁３０のリッド部３０ｂの第２面３２ｂｃが、前記外側壁３２の一般面３２ｃに対して４５～７５度をなす角度に形成されてなることによって、乗員の背中の傾斜に沿う形状となり、乗員に異物感を与えないことになる。

【００４９】また、前記内側壁３０の前記シートバックフレーム１０に当接しない部位、つまり第１面３０ｂａの前側と第２面３０ｂｃとにかけては、前記開口端部側に向けてリブ３０ｂｈが架橋されてなるので、内側壁３０の当初の形状の保形性が良いことになる。

【００５０】また、前記リブ３７は、前記インフレータ２１を支持するケース本体２７の部分から前記開口部２６に向けて外側壁３２の内面に形成されてなるが、無くても良い。

【図面の簡単な説明】

【図１】本発明の一実施形態のエアバッグ装置を搭載したシートの全体斜視図である。

【図２】図１の正面図である。

【図３】図２のＳＡ－ＳＡ線に沿った断面図である。

【図４】図３のケース本体単品の断面図である。

【図５】図４のケース本体の開口部側からの斜視図である。

【図６】図１の状態からエアバッグ本体が膨出した状態を示す斜視図である。

【図７】図６の正面図である。

【図８】図７のＳＢ－ＳＢ線に沿った断面図である。

【図９】エアバッグ本体の側面図である。

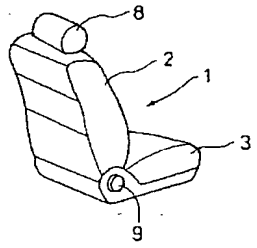
【図１０】図９のＳＣ－ＳＣ線に沿った断面図である。

【符号の説明】

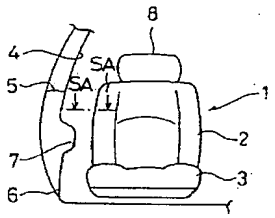
１　シート
２　シートバック
４　車室内側壁
７　アームレスト部
１０　シートバックフレーム
１０ａ　シートバックフレームの側面
１０ｂ　シートバックフレームの前面
１６　エアバッグ装置
１７　開裂部
１９　補強部材
２１　インフレータ
２２　ホルダ
２３　噴出し口
２４　導入部

２５　エアバッグ本体
２６　開口部
２７　ケース本体
３０　内側壁
３０ｂ　リッド部
３０ｂａ　第１面
３０ｂｃ　第２面
３０ｂｅ　自由端部
＊３０ｂｈ　リブ
３２　外側壁
３２ａ　前端部
３２ｂ　係合穴
３２ｃ　一般部
３５　薄肉ヒンジ
３６　爪部
＊

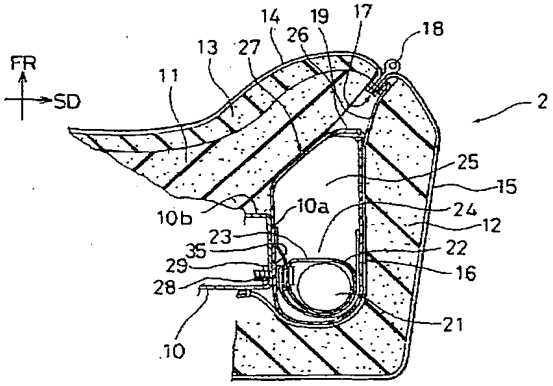
【図１】



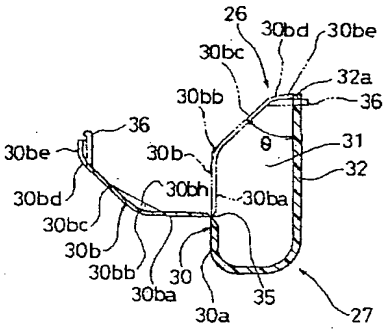
【図２】



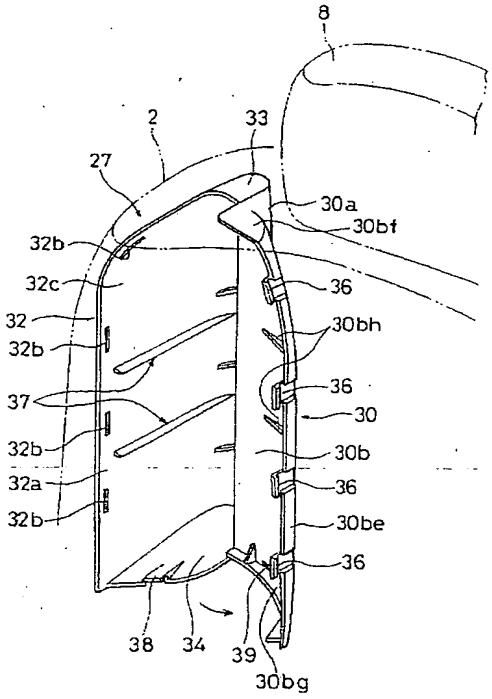
【図３】



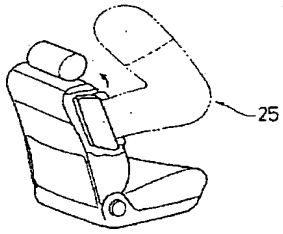
【図４】



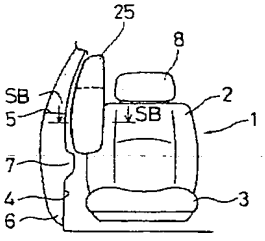
【図５】



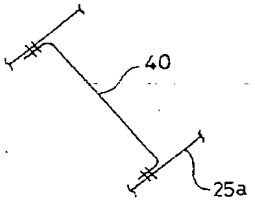
【図６】



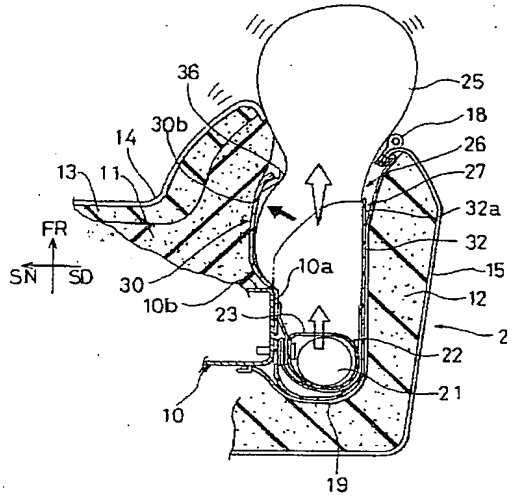
【図７】



【図１０】



【図８】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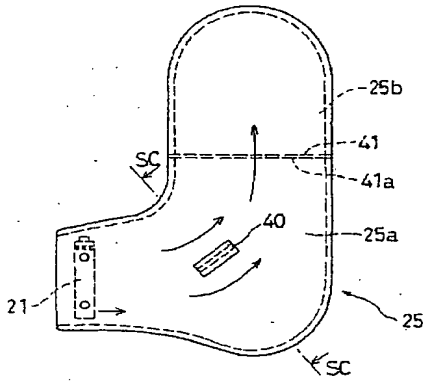
【図９】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